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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/505,475

08/24/2004

Guido Mayer

3165-105

1724

6449

7590

07/10/2007

ROTHWELL, FIGG, ERNST & MANBECK, P.C.

1425 K STREET, N.W.

SUITE 800

WASHINGTON, DC 20005

EXAMINER

OH, TAYLOR V

ART UNIT

PAPER NUMBER

1625

NOTIFICATION DATE

DELIVERY MODE

07/10/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

Office Action Summary

Application No.

10/505,475

Applicant(s)

MAYER ET AL.

Examiner

Taylor Victor Oh

Art Unit

1625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6 and 8-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6 and 8-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Applicant's arguments with respect to claims 6 and 8-31 have been considered but are moot in view of the new ground(s) of rejection.

The Status of Claims:

Claims 6 and 8-31 are pending.

Claims 6 and 8-31 are rejected.

DETAILED ACTION

1. Claims 6 and 8-31 are under consideration in this Office Action.

Priority

2. It is noted that this application is a 371 of PCT/EP03/01160 (02/06/2003).

Drawings

3. None.

Claim Rejections - 35 USC § 102

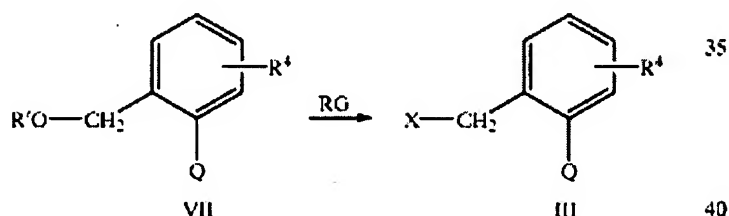
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 6, 17-18, 21, and 28-31 are rejected under 35 U.S.C. 102(b) as being anticipated clearly by Oberdorf et al (US 6,114,342).

Oberdorf et al discloses the followings (see col. 5, lines 32-60):



R'=unsubstituted or substituted alkyl or unsubstituted or substituted aryl

No.	RG	X
III.1	BCl ₃	Cl
III.2	HBr	Br

by means of cleavage with, for example, boron trichloride (for III.1) or hydrogen bromide (for III.2) in inert solvents such as halogenated hydrocarbons at from (-30) to 40° C. An advantageous synthesis from the corresponding compound VII where R'=2-tolyl (see EP-A 477 631, Table 1, No. 94) is described in Examples 1 to 3.

The preparation of the compounds III where Q is C(=NOCH₃)-COOCH₃ has been disclosed in EP-A 363 818.

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The compounds VII can also be employed in the form of their salts, in particular as the hydrohalides (eg. hydrochloride or hydrobromide). If salts are used, it is expedient to carry out the reaction in the presence of a base (eg. alkaline earth metal or alkali metal alkoxides, or alkaline earth metal or alkali metal hydroxides, eg. sodium methoxide, sodium ethoxide, potassium tert-butoxide, sodium hydroxide, potassium hydroxide and calcium hydroxide).

(see col. 3 ,lines 60-67).

This is identical with the claims.

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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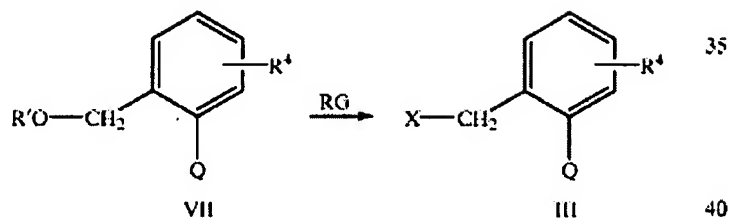
The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 6, and 8-31 are rejected under 35 U.S.C. 102(b) as being anticipated clearly by Oberdorf et al (US 6,114,342) in view of Jemphy et al (J. Org. Chem . 1981, 46. 4545-4551) and Moody et al (Synlett 1999, no. 10, 1575-76).

Oberdorf et al discloses the followings (see col. 5, lines 32-60):

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R'=unsubstituted or substituted alkyl or unsubstituted or substituted aryl

No.	RG	X
III.1	BCl ₃	Cl
III.2	HBr	Br

by means of cleavage with, for example, boron trichloride (for III.1) or hydrogen bromide (for III.2) in inert solvents such as halogenated hydrocarbons at from (-30) to 40° C. An advantageous synthesis from the corresponding compound VII where R'=2-tolyl (see EP-A 477 631, Table I, No. 94) is described in Examples 1 to 3.

The preparation of the compounds III where Q is C(=NOCH₃)-COOCH₃ has been disclosed in EP-A 363 818.

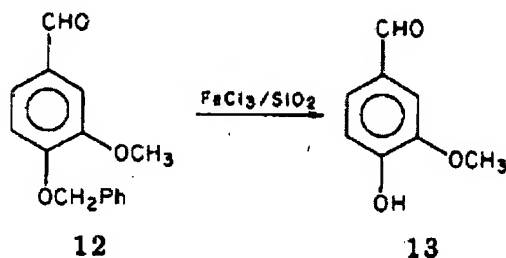
The compounds VII can also be employed in the form of their salts, in particular as the hydrohalides (eg. hydrochloride or hydrobromide). If salts are used, it is expedient to carry out the reaction in the presence of a base (eg. alkaline earth metal or alkali metal alkoxides, or alkaline earth metal or alkali metal hydroxides, eg. sodium methoxide, sodium ethoxide, potassium tert-butoxide, sodium hydroxide, potassium hydroxide and calcium hydroxide).

However, the instant invention differs from the prior art in that the concentration of the catalyst, such as hydrogen chloride is unspecified ; the use of Fe and Indium is also unspecified. .

Jemphy et al (J. Org. Chem . 1981, 46. 4545-4551) discloses the benzyl ether cleavage using $\text{FeCl}_3/\text{SiO}_2$ in the followings (see page 4548 , left col.):

Cleavage of Benzyl Ethers. As part of this study of phenol ether oxidations we attempted to oxidize *O*-benzylpseudocodamine (3c) with $\text{FeCl}_3/\text{SiO}_2$. The sole product was isolated and identified as the debenzylated (\pm)-pseudocodamine 3d in 40% yield. All further attempts to generate any oxidation products failed. In fact, by increasing the amount of reagent to 5 molar equiv and leaving the reaction mixture of $\approx 80^\circ\text{C}$ on the rotary evaporator overnight, a new product was isolated which contained at least four chlorine atoms as determined by mass spectral analysis.

In an attempt to determine the scope and limitations of $\text{FeCl}_3/\text{SiO}_2$ for the cleavage of benzyl ethers, a number of simple benzyl ethers were treated with this reagent. The procedure was the same as for oxidations except that the phenol products were isolated by aqueous base extraction, subsequent acidification of the aqueous phase, and back-extraction with a volatile organic solvent. Pure phenols were always obtained in this manner, often in high yield (Table III). It was shown, for example, that compounds 12 and 14 gave excellent yields of vanillin (13) and iso-vanillin (15), using 1.1 equiv of FeCl_3 at 30°C for 1 h. Dichromate titration showed that no Fe(II) was generated. These are not oxidative cleavages.¹⁷ Use of 0.5 equiv of reagent gave a 43% yield of 13 and 12, indicating that the FeCl_3 is reacting stoichiometrically.



Furthermore, Moody et al discloses that the use of indium in aqueous ethanolic ammonium chloride is an effective method for deprotection of 4-nitrobenzyl ethers and esters. (see page 1575, abstract page).

With respect to the use of hydrogen chloride in the claimed process, the Oberdorf et al prior art does teach the employment of the hydrogen bromide ; both are commonly involved in using the halogen base in their respective acidic forms; there is a teaching of equivalence among them in their usage in the absence of an unexpected result. Therefore, it would have been obvious to the skilled artisan in the art to be motivated to use the well-known hydrogen chloride as an alternative to the hydrogen bromide into the Oberdorf 'et al process. This is because the skilled artisan in the art would expect such a combination to be successful as the guidance shown in the e Oberdorf 'et al .

Oberdorf et al does disclose the process of preparing 2-(chloromethyl)phenyl acetic acid derivatives by cleaving the corresponding benzyl ether the followings in the presence of hydrogen bromide; similarly, Jemty et al expresses the benzyl ether cleavage using $\text{FeCl}_3/\text{SiO}_2$; furthermore, Moody et al clearly discloses the selective cleavage of nitrobenzyl ethers using indium in aqueous ethanolic ammonium chloride. All the prior art are commonly involved in the cleavage of the substituted or unsubstituted benzyl ether compound. Therefore, it would have been obvious to the skilled artisan in the art to be motivated to incorporate the Jemty's et al iron and

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Moody's et al indium into the Oberdorf et al process in order to speed up the reaction process and react all the reactants to its completion. This is because the skilled artisan in the art would expect such a combination to be successful , efficient ,and less costly.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taylor Victor Oh whose telephone number is 571-272-0689. The examiner can normally be reached on 8:30-5:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Andres can be reached on 571-272-0867. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Taylor Victor Oh, MSD, LAC
Primary Examiner
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6/27/07